

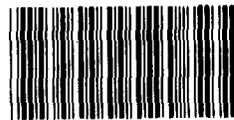
GAO

Report to the Chairman, Committee on  
Government Operations, House of  
Representatives

July 1991

# NAVAL AVIATION

## Status of Navy A-12 Contract and Material at Termination



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National Security and  
International Affairs Division

B-243311

July 24, 1991

The Honorable John Conyers, Jr.  
Chairman, Committee on Government Operations  
House of Representatives

Dear Mr. Chairman:

In April 1991 we testified<sup>1</sup> before you on the termination of the Navy's A-12 program. At that time we were asked to provide (1) information on what the government obtained for the almost \$2.7 billion it spent on the A-12 full-scale development contract and (2) additional data on the contract's cost overruns and schedule slippages.

## Background

In the 1980s the Navy began a program to replace its aging fleet of A-6 medium attack aircraft with a new aircraft—the A-12—that would incorporate stealth technology. In January 1988 the Navy awarded a fixed-price incentive contract for full-scale development of the A-12 to the team of General Dynamics and McDonnell Douglas Aerospace Corporation. The contract had a target price of \$4.4 billion and a ceiling price of \$4.8 billion.

On January 7, 1991, the Secretary of Defense announced that the Navy had terminated the A-12 contract for default due to difficulties the contractors had in executing the contract. The Navy projected that the contractors would overrun the \$4.8 billion contract ceiling price by \$2.7 billion and that first flight would be delayed by over 2 years. According to Navy figures, the A-12 full-scale development contract had not exceeded its \$4.4 billion target cost. As we reported in March 1991,<sup>2</sup> expenditures on the A-12 full-scale development contract were \$2.7 billion.

At contract termination, the Secretary of Defense stated that the Navy still needed to develop a next-generation replacement for its A-6E strike aircraft that would incorporate stealth technology and could be deployed from an aircraft carrier. On July 3, 1991, the Under Secretary of Defense for Acquisition authorized the Navy to proceed with concept exploration and definition for a replacement aircraft, referred to as the AX.

<sup>1</sup>Information on the A-12 Default Termination (GAO/T-NSIAD-91-15, Apr. 11, 1991).

<sup>2</sup>Naval Aviation: Navy A-12 Aircraft Funding Status (GAO/NSIAD-91-171, Mar. 22, 1991).

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From unexpended A-12 appropriations, the Navy has proposed reprogramming \$137.5 million to initiate the AX program and using \$30 million for other purposes, including shutting down the A-12 program. In addition, the Navy has proposed reprogramming another \$1.8 billion from unexpended A-12 appropriations to accelerate other aircraft programs that will contribute to the Navy's attack capability until the AX is introduced into the fleet.

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## Results in Brief

Navy officials stated that the government owns the data submitted by the contractors that support six design and management reviews accepted by the government plus data submitted in response to over 2,700 requirements. The government paid \$1.33 billion for the six reviews. The Navy also made progress payments totaling \$1.35 billion to the contractors for work in process.

The Navy demanded that the contractors repay the \$1.35 billion for work in process that had not been accepted at contract termination. According to Navy officials, the government could have required the contractors to transfer the work to the government. Instead, the Navy demanded repayment because the work is no longer worth the amount paid for it, since most of this material could only be used for the A-12. The Navy and the contractors signed an agreement deferring repayment, pending a decision by the United States Claims Court or a negotiated settlement between the government and the contractors. The agreement to defer repayment was made because (1) the termination for default is in dispute and (2) the repayment might place one or both contractors in a weakened financial condition that could endanger essential defense programs. The agreement is scheduled to be reviewed in December 1992 and annually thereafter to determine if it should be terminated.

The Navy's AX program office identified some of the work in process that it might want to purchase for the AX or other aircraft programs. However, funding to be used to purchase this work was not included in the Navy's budget. The contractors want to sell some of the A-12 work in process and have transferred some of the work to other Navy contracts. The questions of ownership and transfer of A-12 material have not been resolved. As a result, we are still reviewing the transfer issue and have requested that the Department of Defense provide information on the government's rights to A-12 work in process at contract termination and the contractors' disposition of this material.

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At the time of contract termination, the Navy's and the contractors' cost estimates at program completion had increased to \$7.5 billion and \$5.4 billion, respectively. In addition, the A-12's first flight schedule had slipped from June 1990 to September 1992.

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## What the Government Owns and Does Not Own

Work accomplished under the A-12 full-scale development contract included six design and management reviews and data on more than 2,700 requirements. Navy officials said that the government owns this work. A-12 work also accomplished under the contract included work in process at the time of contract termination. Navy officials stated that the government has rights to, but does not own, this work.

The contract required the contractor team to develop, build, and deliver eight full-scale development aircraft. The development strategy did not require the contractors to build prototype aircraft before beginning full-scale development. Since the contract was terminated before any aircraft were assembled, no aircraft were delivered to the Navy. However, according to Navy officials, significant progress was made toward building the first A-12.

According to Navy officials, the reason for incorporating the six design and management reviews into the contract was not to ensure the delivery of items to the government. Rather, the reason was to build in decision points that would demonstrate the contractors' progress in developing the A-12 and to designate milestones that would provide the contractors additional funding to relieve them of the financial burden of assuming a significant share of A-12 development costs. Contract provisions required the government to reimburse the contractors through monthly progress payments that amounted to 80 percent of incurred costs. The remaining 20 percent was to be withheld until a planned event was achieved or a physical item was received.

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## Work Accepted

In accordance with contract terms, the Navy paid the contractors \$1.33 billion for the six design and management reviews. (See table 1 for the specific amount paid for each review.) For example, the first review, the initial design review, was required 4 months after contract award. This review was intended to clarify and, if necessary, resolve potential areas of misunderstanding between the government and the contractors. According to Navy officials, the review demonstrated that the contractors understood the A-12's design and test requirements and that the

aircraft's design was compatible with the contract's engineering requirements. The initial design review was held in April 1988, and the contractors were paid the 20 percent withheld from their progress payments for this item at that time. The contractors were paid a total of \$269.8 million for the initial design review when Naval Air Systems Command officials certified that the review met the contract's requirements. The reviews are described in appendix I.

**Table 1: Payments for Contract Items Accepted Under the A-12 Contract**

<b>Item</b>	<b>Date received</b>	<b>Contract price</b>
Initial design review	1988	\$269,844,749
Preliminary design review	1988	261,894,621
Critical design review (engine)	1989	139,023,735
Critical design review (phase 1A)	1989	150,604,294
Phase 1A test review	1989	196,955,043
Program management review	1989	316,335,419
<b>Total</b>		<b>\$1,334,657,861</b>

In addition to data supporting the six design and management reviews, the government accumulated other data as a result of 2,700 reporting requirements. These data were derived from various tests and analyses conducted by the contractors. For example, the contractors were required to provide information on the design specifications and expected reliability for A-12 components such as electrical generators, landing gear, launch bars, and arresting hooks. Data were also provided on wind tunnel and survivability test results and weight and balance analyses. According to Navy officials, these data, together with the information supporting the six design and management reviews, fill approximately 125 file cabinet drawers.

**Work in Process**

The contractors were paid an additional \$1.35 billion for work that had been done on the A-12 contract but had not been accepted by the government as completed at the time of contract termination. According to Navy officials, progress was made toward building the first A-12. Both contractors had completed approximately 99 percent of the engineering drawings and had fabricated about 85 percent of the tools needed to manufacture A-12 parts. Appendix II shows the major subassemblies of the A-12 that were manufactured before contract termination, and appendix III shows the progress each contractor had made toward building the first A-12. The contractors had manufactured a sufficient number of some parts to meet the requirements for the first 14 aircraft

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and had started assembling the A-12's structure. These parts are at various contractor and subcontractor plants.

According to Navy officials, the government does not own, but has an interest in, the A-12 work in process on the basis of the progress payments and default clauses of the Federal Acquisition Regulations. In a June 12, 1991, memorandum, a Naval Air System Command Counsel concluded that the contractors also have an interest in the A-12 work in process.

The Federal Acquisition Regulations state that, as we testified, the government acquires title to A-12 items by virtue of its progress payments, and the contracting officer can require the contractors to deliver that property to the government after termination of the contract for default. However, after contract termination, Navy officials concluded that the work in process was no longer worth \$1.35 billion because most of it was developed specifically for the A-12. Therefore, the government has not sought to have the work transferred to it; instead, it has demanded that the contractors repay the \$1.35 billion.

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## Sale of Assets

AX program officials believed that some of the A-12 work in process might be of value to the AX program. On January 25, 1991, the AX program manager received permission from the Assistant Secretary of the Navy for Acquisition to discuss the purchase of A-12 data and items with the contractors. Accordingly, AX program officials notified the contractors by letter, dated January 31, 1991, that the government wished to discuss the purchase of the following items: stealth-related technologies, manufacturing technologies, mission planning, covert penetration, software, equipment that is identical to equipment already in the government's inventory, and test stands and benches.

After reviewing the items, AX program officials concluded that most had been specifically designed for the A-12 and, consequently, might be of little use to the AX and other aircraft programs, unless the A-12's design is incorporated into these programs. Nevertheless, the AX program office saw benefits in procuring some of the A-12 work. (See app. IV for a partial list of items.) In February 1991 AX program officials and contractor representatives met to discuss the sale of A-12 items. To procure these items, the program office planned to use \$200 million from unexpended A-12 appropriations. However, these funds were not included in the fiscal year 1992 amended budget submission.

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On May 6, 1991, the AX program manager informed the Assistant Secretary of the Navy for Research, Development, and Acquisition that, since funding was not approved, its effort to procure A-12 technology was being stopped.

Subsequently, the contractors informed the Navy that they planned to sell A-12 items to other interested parties. Initially, Navy contracting officials concluded that the contractors' sale of A-12 items was acceptable because the deferral agreement only required the contractors to maintain sufficient assets or available credit to pay the government the full amount of the debt. These officials did not plan to control the contractors' disposition of the items, except to ensure that proper accounting procedures were adopted by the contractors to track the sales. The deferral agreement does not specify that repayment be derived from the sale of A-12 items. Navy contracting officials were recently told by the contractors that A-12 items and their costs were transferred to the Navy's F/A-18 and EA-6B aircraft programs. In a June 18, 1991, letter, the Navy stated its position on the disposition of A-12 items, informing the contractors that they must obtain the Navy contracting officer's advance approval of the action and terms before they can dispose of property subject to the progress payments clause of the Federal Acquisition Regulations. The Navy also informed the contractors that they must submit a detailed description of the method used to track the disposed property, the value of the property and the method used to determine that value, the destination of the property, and the proposed accounting treatment of the property. This must be done for both the A-12 contract and any government contract to which the material will be transferred.

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## Deferral Agreement and Asset Disposition

The deferral agreement states that the government will not take any actions to enforce the collection of the \$1.35 billion debt owed by the contractors, pending a decision by the United States Claims Court or a negotiated settlement. However, the agreement provides that the contractors can prepay the debt.

The Navy wants to ensure that the contractors do not receive additional progress payments for A-12 items transferred to other government contracts. On June 12, 1991, McDonnell Douglas informed the government that the transfer of A-12 costs to other government contracts will not result in duplicative progress payments under the other contracts they hold.

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We are still reviewing this issue and have asked the Secretary of Defense for a position statement on the ownership and transfer of A-12 items (see app. V). We also asked for information on any actions that he is taking to preserve any rights the government retains on these items until the questions of ownership and transfer are resolved. We intend to follow up with Navy officials as soon as a reply is received.

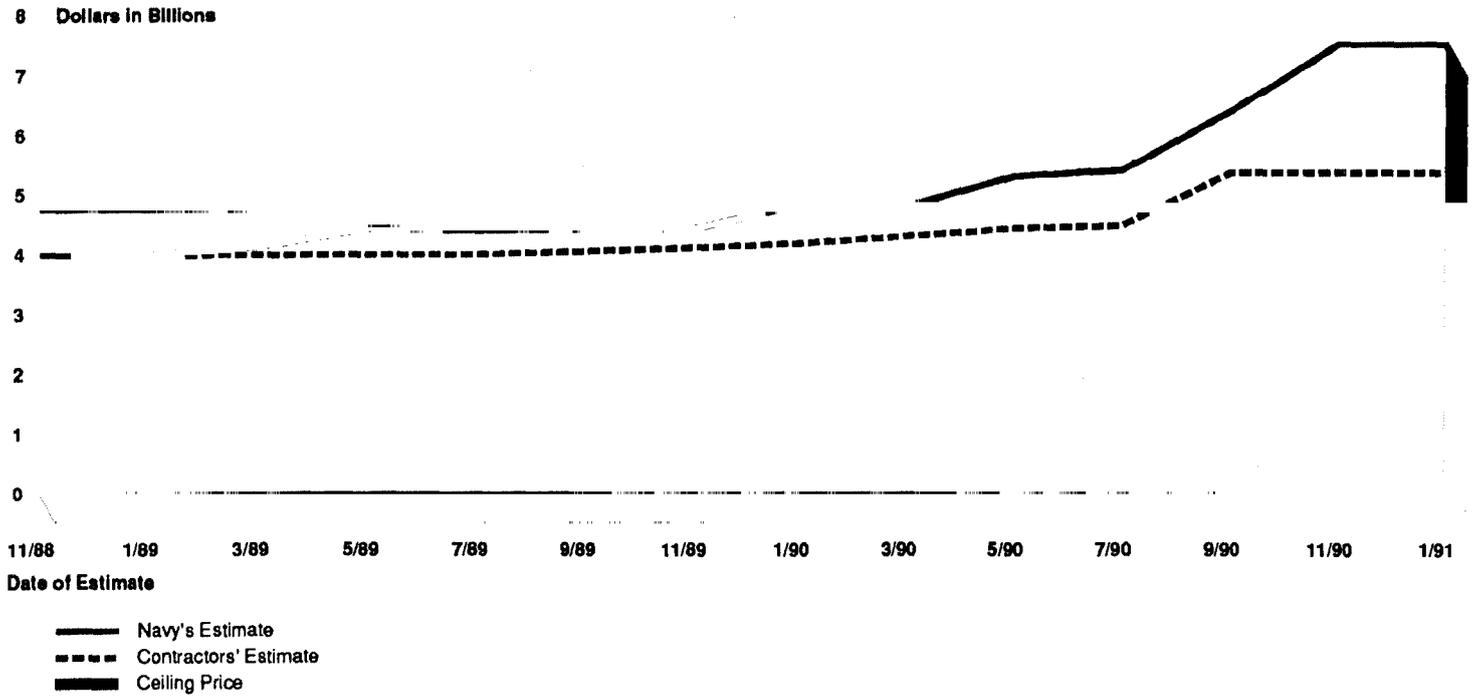
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## A-12 Program Cost Overruns and Schedule Slippages

By May 1990 Navy A-12 program management was officially reporting that costs would exceed the \$4.8 billion contract ceiling. On June 1, 1990, the contractors advised the Navy that the full-scale development cost would overrun the contract's ceiling price by an amount they could not absorb. The contract had a target price of \$4.4 billion and required the government to pay all costs up to that amount. Costs between the target price of \$4.4 billion and the ceiling price of \$4.8 billion would be shared by the government and the contractors; the government would pay 60 percent of the costs and the contractors would pay 40 percent. The contractors were responsible for all costs above the ceiling.

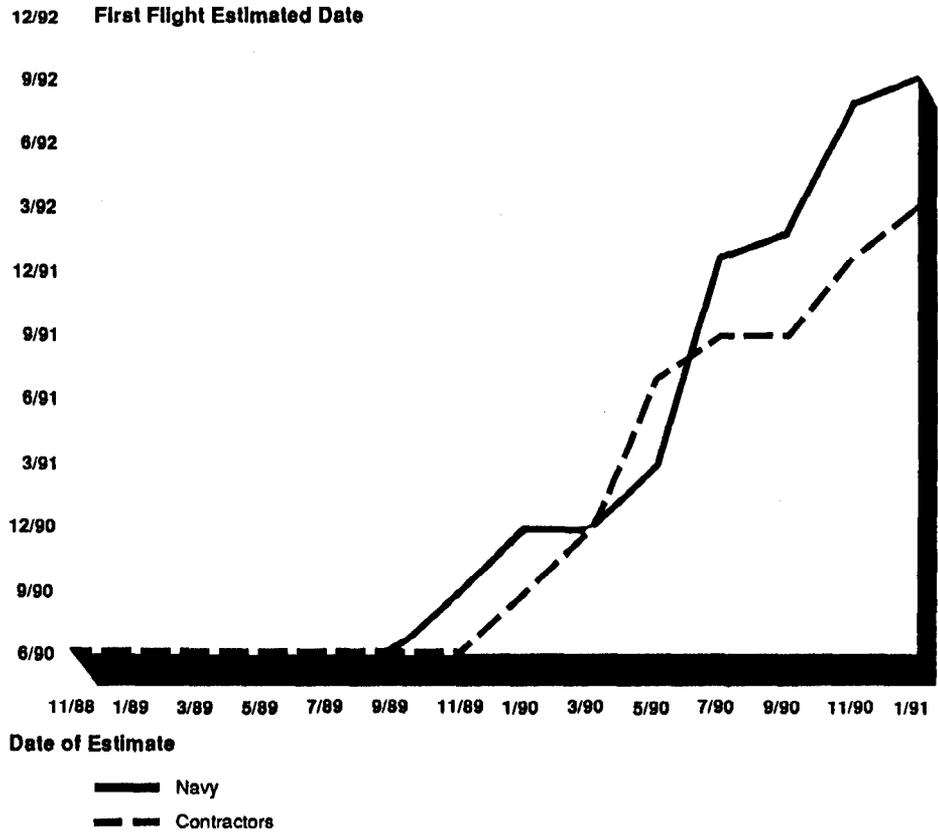
By contract termination, the Navy's program office cost estimate at contract completion had risen to \$7.5 billion. Before the December 7, 1990, Defense Acquisition Board review of the A-12 program, the Deputy Director for Cost Management, Office of the Secretary of Defense, indicated that \$7.5 billion was a reasonable estimate. The contractors' cost estimate had risen to approximately \$5.4 billion. Figure 1 shows the Navy's and the contractors' cost estimates at contract completion throughout the program.

**Figure 1: A-12 Program Cost Estimates at Contract Completion**



In addition to rising cost estimates, the A-12's first flight schedule had slipped from June 1990 to September 1992. The Navy attributed the slippage to the contractors' efforts to reduce the A-12's weight and other manufacturing difficulties. Figure 2 shows the Navy's and the contractors' first flight estimates throughout the program.

**Figure 2: A-12 First Flight Estimates at Contract Completion**



## Scope and Methodology

To accomplish our work, we interviewed officials from and reviewed documents at the Navy's A-12 and AX Program and Engineering Offices in Crystal City, Virginia. We also used information previously obtained from General Dynamics Corporation in Fort Worth, Texas; and McDonnell Douglas Aerospace Corporation in St. Louis, Missouri.

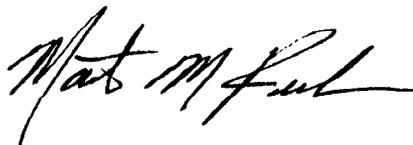
We conducted our work between April and July 1991 in accordance with generally accepted government auditing standards. We did not obtain official agency comments on this report. However, we discussed the information in a draft of this report with Department of Defense officials and incorporated their comments where appropriate.

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We are sending copies of this report to the Secretaries of Defense and the Navy, appropriate congressional committees, and the Director of the Office of Management and Budget. We will also make copies available to others.

Please contact me on (202) 275-6504 if you or your staff have any questions concerning this report. Major contributors to this report are listed in appendix VI.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Martin M. Ferber". The signature is fluid and cursive, with the first name "Martin" being the most prominent.

Martin M Ferber  
Director, Navy Issues



# Design and Management Reviews

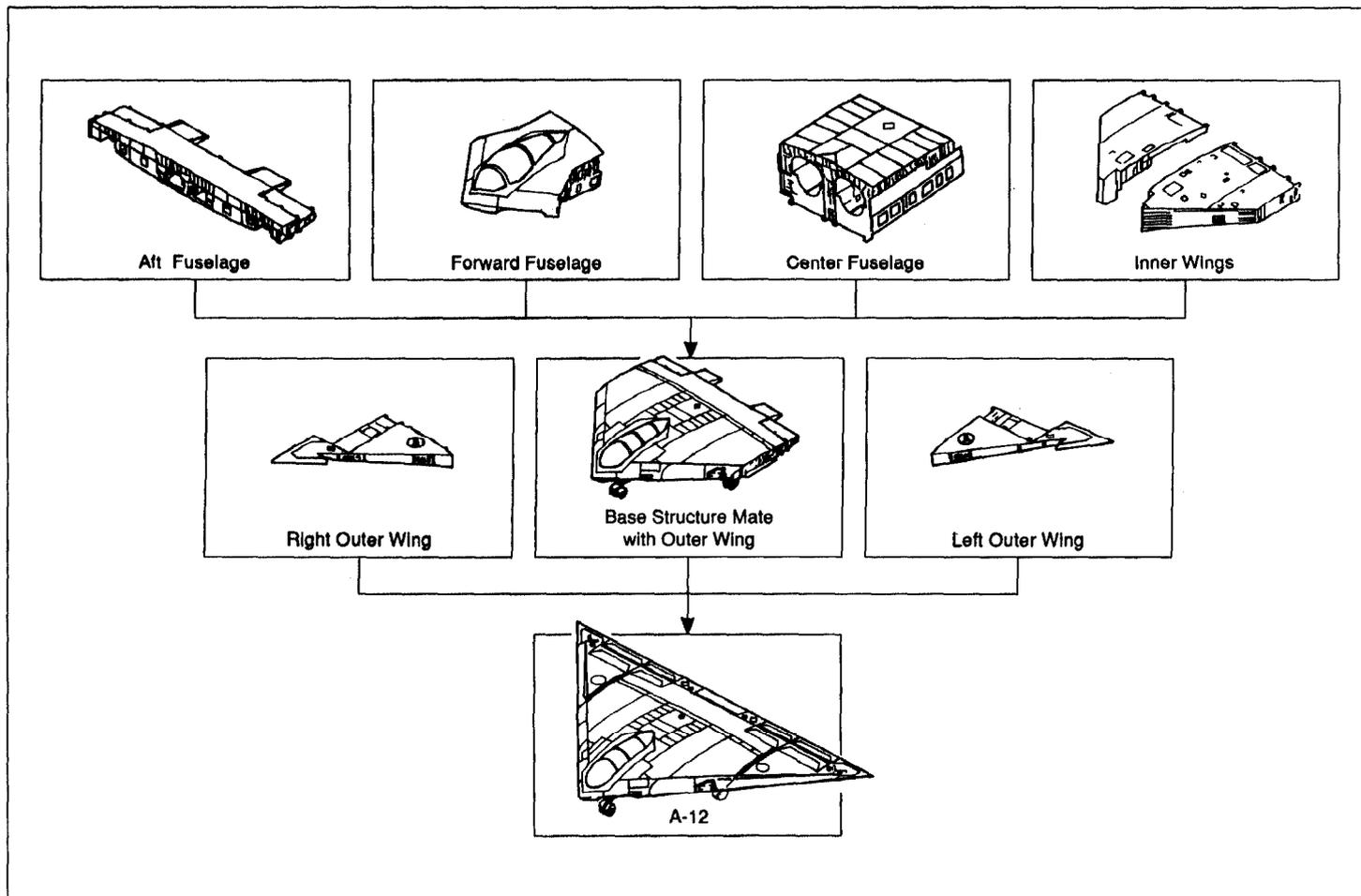
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The following is a description of the six design and management reviews accepted under the A-12 full-scale development contract:

- The initial design review was required within 4 months of contract award to clarify and resolve potential areas of misunderstanding between the government and the contractors. The review also served as a way for the government to determine whether the contractors understood the A-12's design and test requirements and whether the A-12's design was compatible with the engineering requirements of the contract. The review was held in April 1988.
- The preliminary design review was to determine whether the A-12's design was compatible with the performance and engineering requirements of the development specification. The review also evaluated the progress, technical adequacy, and risk of the A-12's design on a technical, cost, and schedule basis. The review was held in October 1988.
- The critical design review was required when the A-12's detailed design and analysis was approximately 90 percent completed. The review was conducted to determine the potential of the aircraft's design to satisfy the performance and engineering requirements of the development specification. The review was conducted in two parts—the first part for the engine and the second part for phase 1A—and counted as two items. The review was conducted in May and August 1989, respectively.
- The phase 1A test review was to test the A-12's design and engineering to assess compliance with design requirements. The testing included the initial effort required to design and fabricate a full-size aircraft and cockpit mock-ups. The testing was completed in May and August 1989 to support the two parts of the critical design review.
- The program management review was conducted to evaluate the current status of the overall program and address all principal technical, programmatic, and contractual matters. The review was held in December 1989.

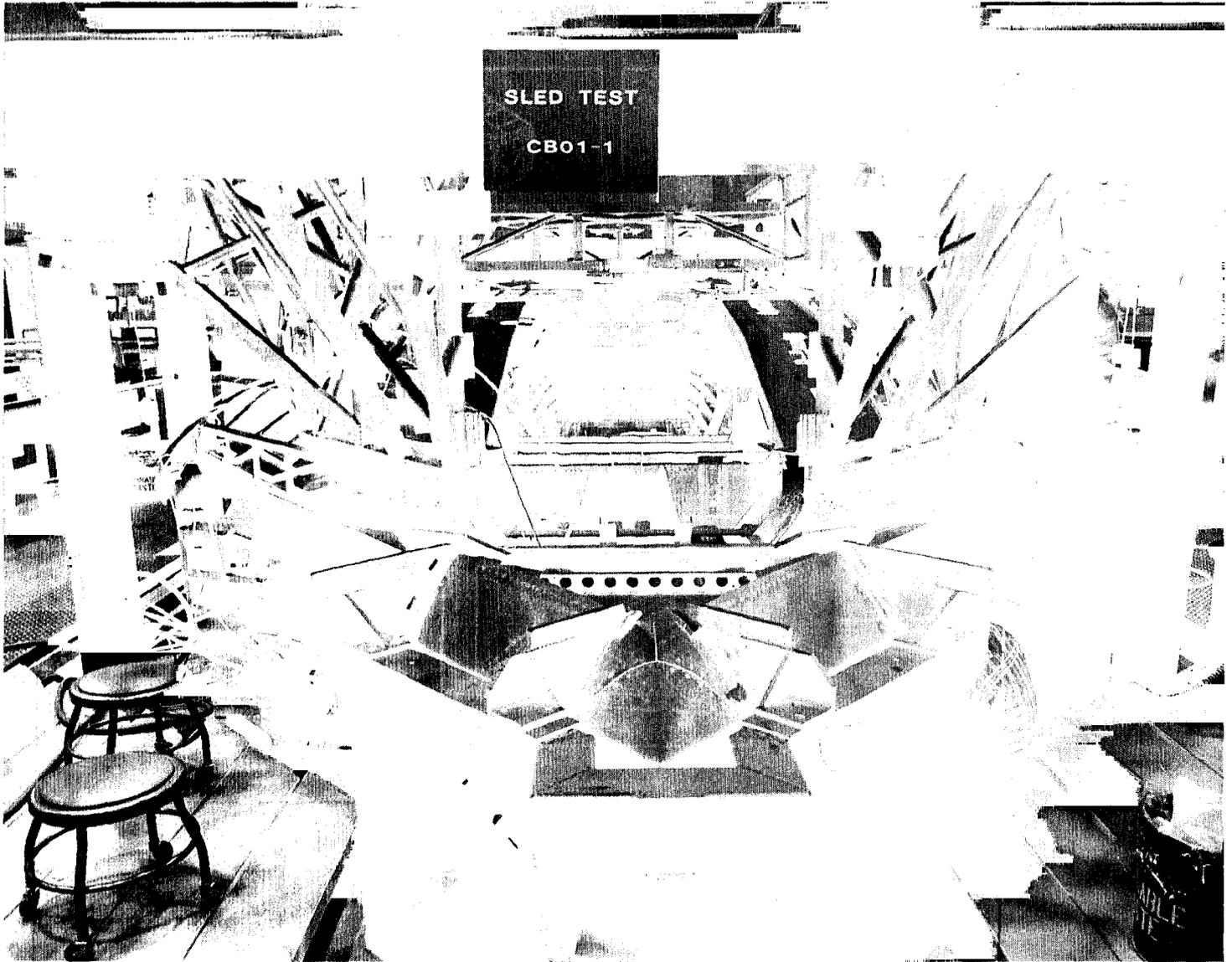
# Major Subassemblies of the A-12

Figure II.1: A-12 Manufacturing Sequence



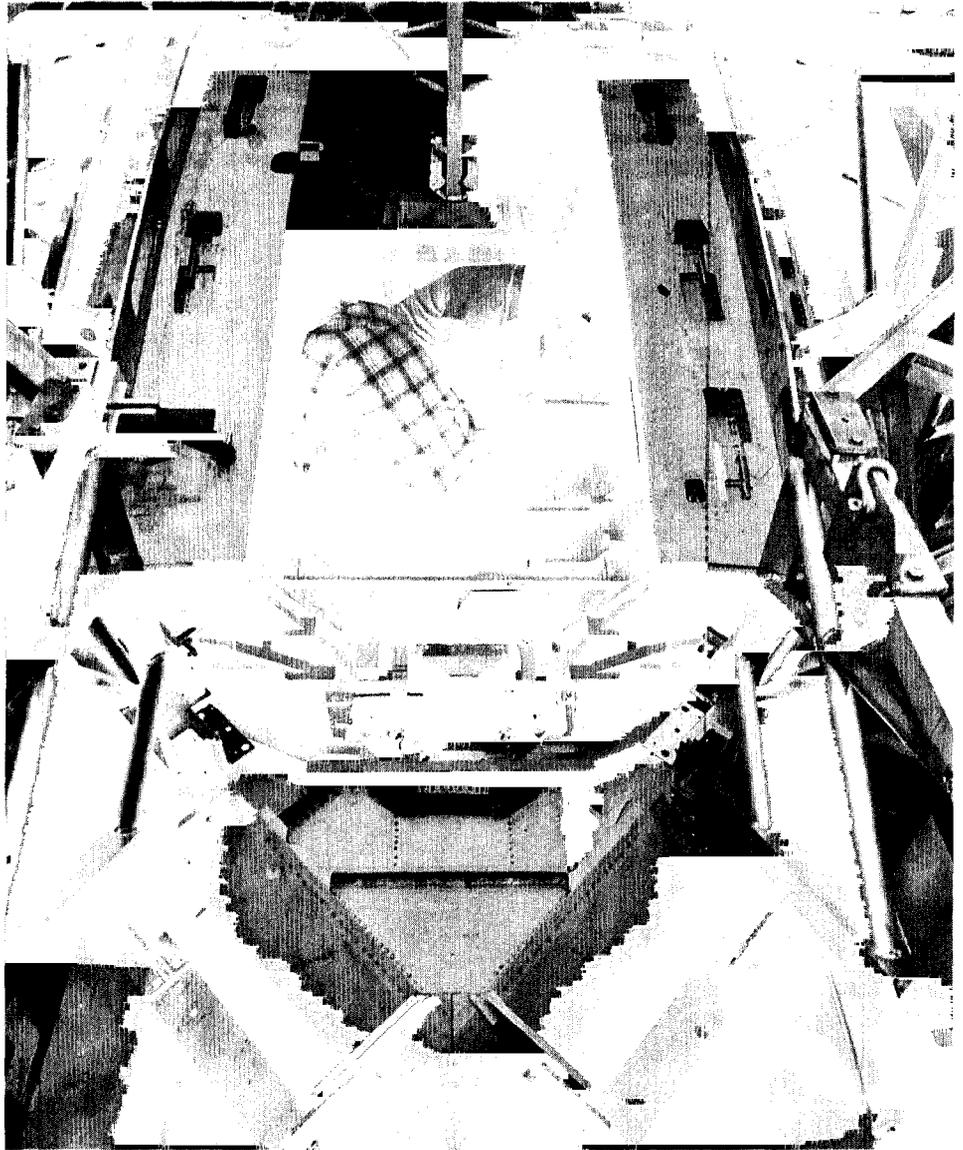
Source: Navy

Figure II.2: Forward Fuselage Front View



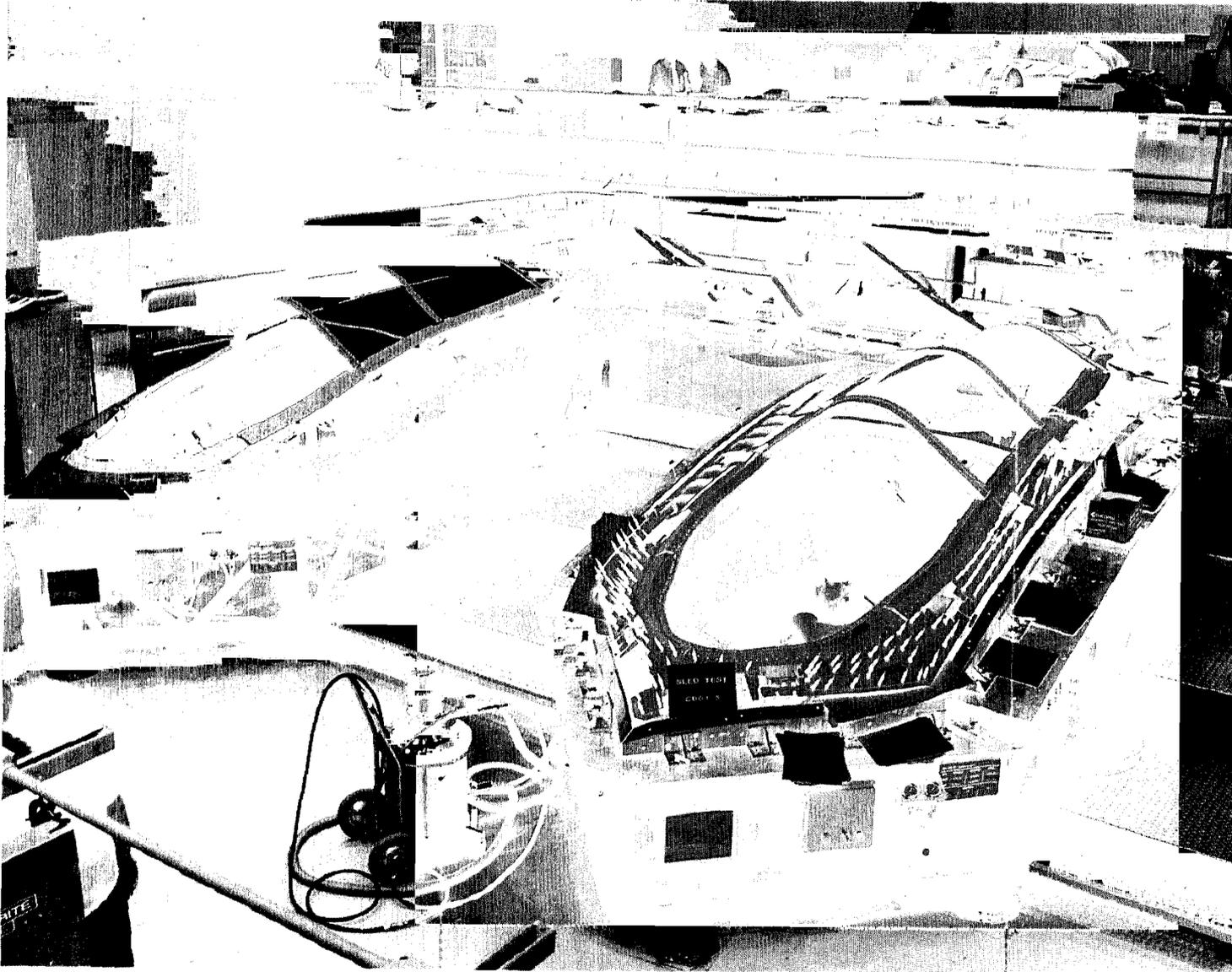
Source: Navy

Figure II.3: Forward Fuselage Top View



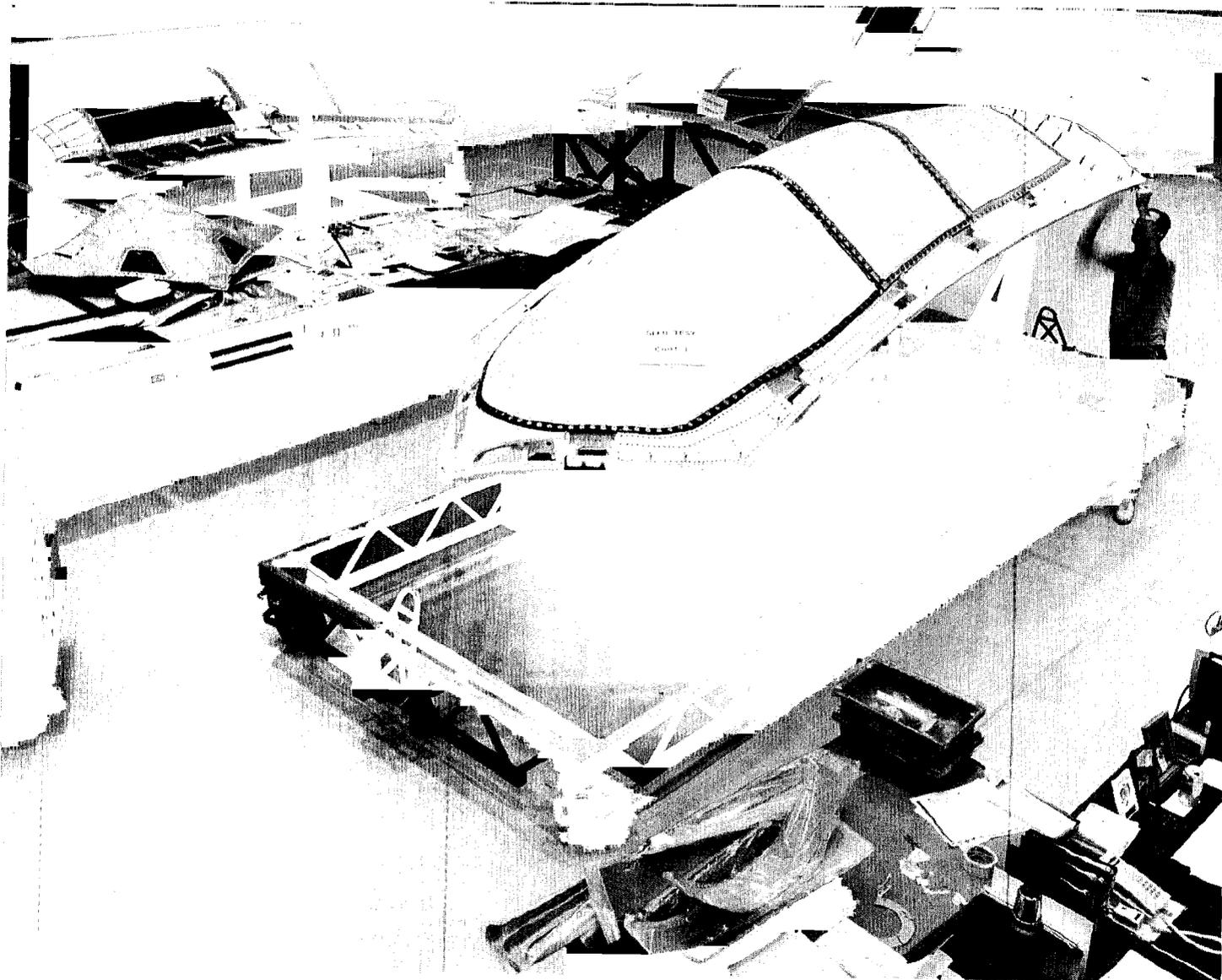
Source: Navy

Figure II.4: Canopy Frame for Forward Fuselage



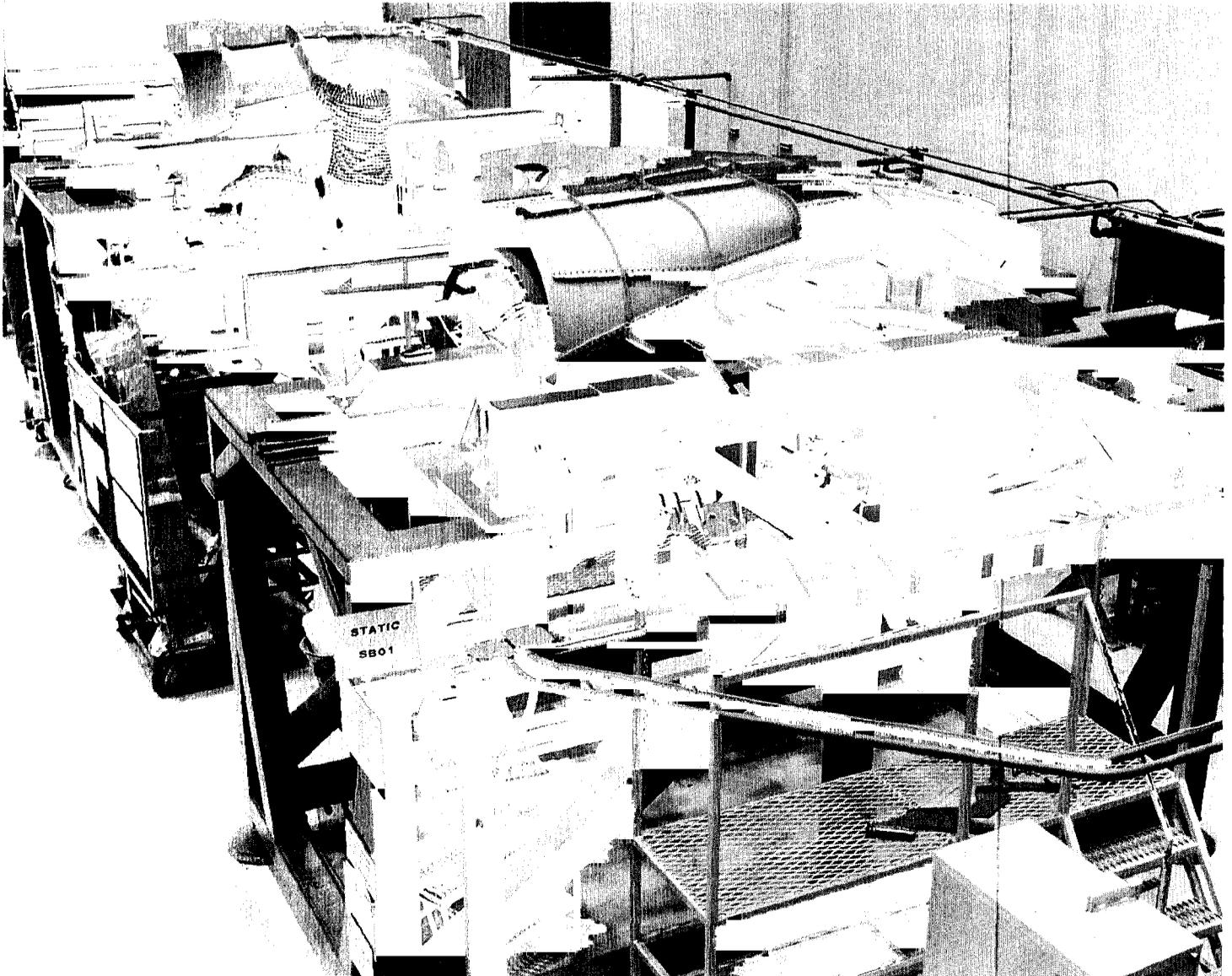
Source: Navy

Figure II.5: Canopy for Forward Fuselage



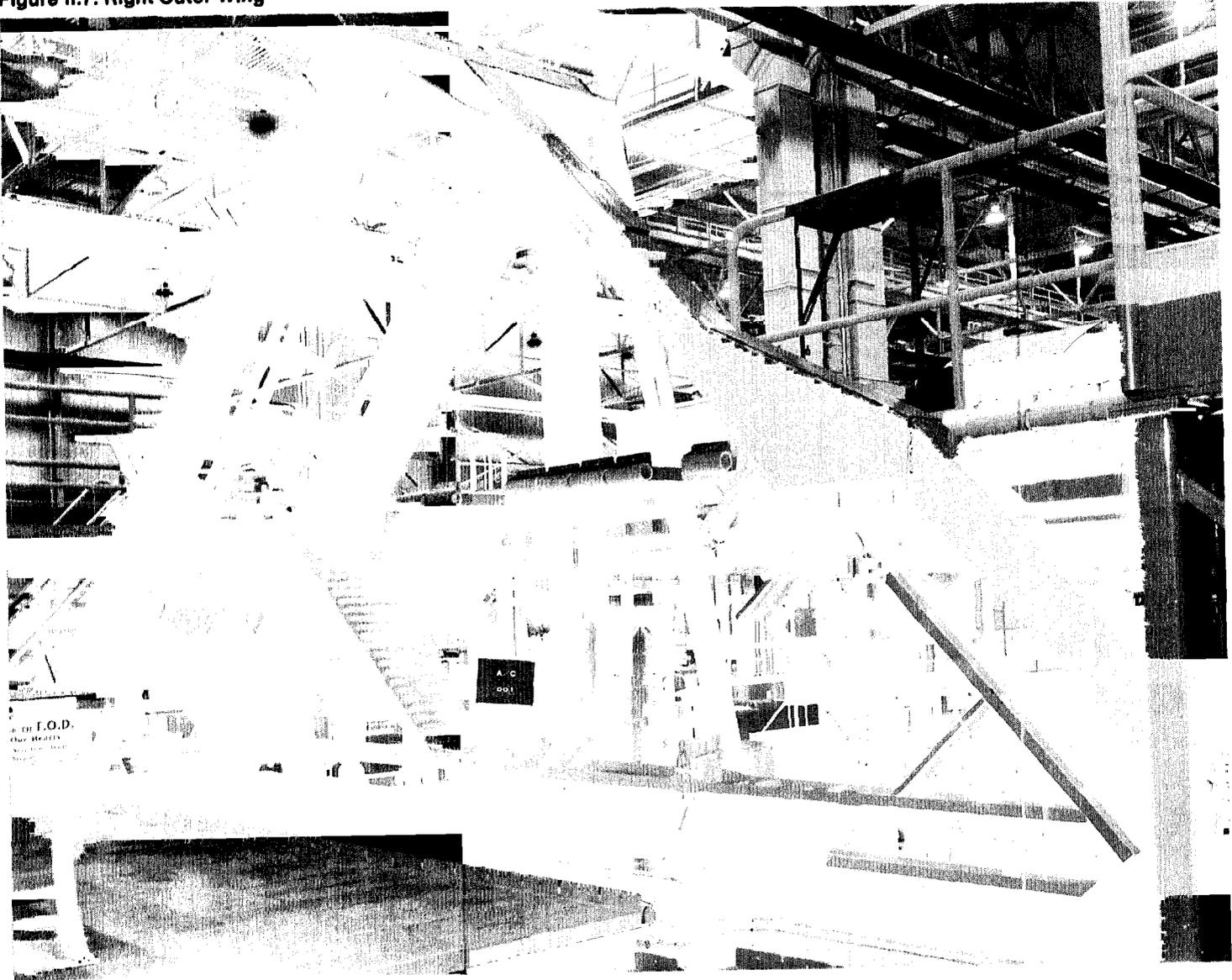
Source: Navy

Figure II.6: Center Fuselage Duct



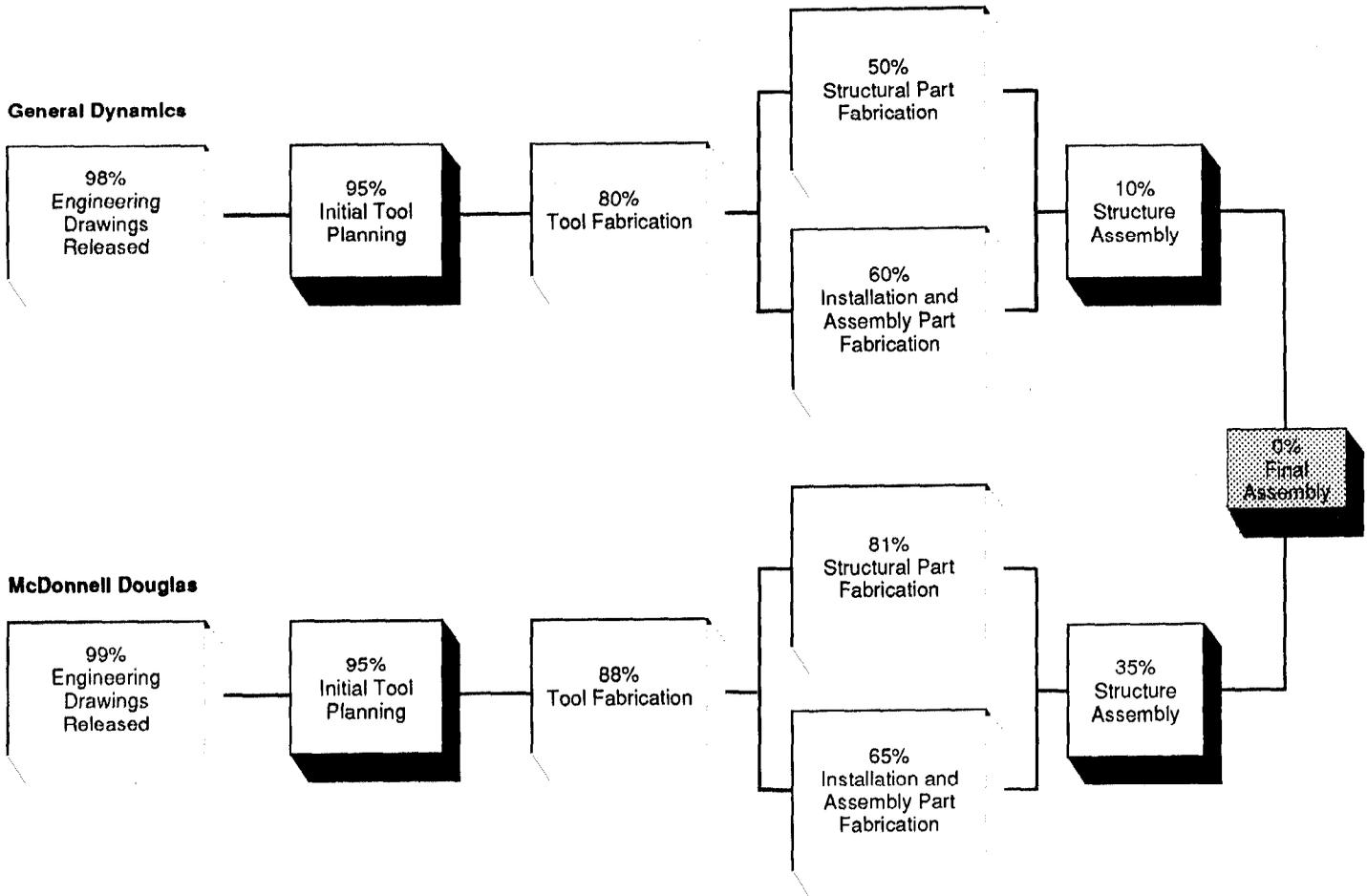
Source: Navy

Figure II.7: Right Outer Wing



Source: Navy

# Progress of the First A-12 at Contract Termination



Source: Navy

# Examples of A-12 Technology Considered for Purchase

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The following list contains examples of A-12 technology the Navy considered purchasing from the contractors:

- Integrated diagnostic demonstration. This material would be applicable to other Navy and Air Force programs, including the AX. It would provide improved system maintainability and cost avoidance, increase efficiencies in electrical fault isolation, and reduce false alarms and equipment removals.
- Wind tunnel test method correlation. This material includes the completion of data analysis to determine the correlation between and accuracy of alternative wind tunnel test methods. The data would help establish test procedures for future programs and save time and money by eliminating duplicative test efforts.
- Production aircraft radar cross section verification test facility. This facility was established by the contractors to quantitatively analyze the radar cross section of production aircraft. It includes a radar and aircraft rotator that produce a visual image, which can be used to identify areas of high radar return. This facility could be used by the government to evaluate the radar cross section characteristics of almost any aircraft.
- Covert penetration simulation models. These computer models would be used to evaluate the mission effectiveness of an aircraft against a given threat scenario. It would provide a tool for the government to use in conducting independent studies to support requirements definition and system compliance.
- Flight control system hardware, software, and data. This material includes an integrated system of test benches, air data sensors, computers, and associated operational software. It would be used to develop design guidelines for fly-by-wire digital computer systems and evaluate advanced air data systems and multipurpose hydraulic actuator systems in an aircraft carrier environment to increase reliability and maintainability and reduce future costs.

# GAO's Letter to the Secretary of Defense



United States  
General Accounting Office  
Washington, D.C. 20548

Office of the General Counsel

B-243311

July 22, 1991

The Honorable Richard B. Cheney  
The Secretary of Defense

Attention: DOD Office of the Inspector General  
Director for GAO Reports (Code: 394392)

Dear Mr. Secretary:

This Office currently is reviewing several aspects of the A-12 contract default termination, including the disposition of assets associated with the program. It is our understanding that the contractor team has transferred some A-12 assets to other programs and is seeking to declassify other assets for possible sale, perhaps to parties outside the government. In addition, we understand that the Navy may be planning to purchase some assets from the team for use in other programs. We have a number of questions regarding these transactions.

Paragraph (d) of the clause at Federal Acquisition Regulation (FAR) section 52.232-16, Progress Payments, provides that title to property such as parts, materials, inventories, and work in process vests in the government when the property is or should have been allocable to the contract. The government retains title to property covered by the clause until the contractor completes all obligations under the contract, including liquidation of all progress payments. On the other hand, paragraph (e) of the clause at FAR section 52.249-9, Default (Fixed-Price Research and Development), provides that the government may require the contractor to transfer title to and deliver to the government any work not previously delivered, as well as other property produced or acquired for the terminated portion of the contract. The contractor and the government must agree on a price for any such transfer. We would appreciate receiving the Department's views on the effect of these clauses on issues concerning ownership of the A-12 assets.

Our specific questions are as follows:

- Does the government have title to the A-12 assets under the Progress Payments clause, or merely the option to obtain title to these assets under the Default clause?

- What interests do the contractors have in the A-12 assets?
- Are the contractors free to transfer A-12 assets to other government programs or parties outside the government without government approval?
- What rights does the government have to proceeds generated by any sales of A-12 assets?
- Has either contractor received additional progress payments for A-12 assets transferred to other programs?
- What action is being taken by the government to protect its interests in the A-12 assets?

We would appreciate a response within 30 days. If there are any questions, our point of contact is William T. Woods, Assistant General Counsel, who may be reached at (202) 275-5212.

Sincerely,



Robert H. Hunter  
Associate General Counsel

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# Major Contributors to This Report

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**Office of the General  
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William T. Woods, Assistant General Counsel

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